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Compact Amplifier

PUBLIC ADDRESS SYSTEM HANDBOOK

User Manual V3.0

Revision History

Version	Modifications	Date
	Original issue.	2/7/97
1.0	Re-Formatted Version	27/7/99
1.1	Change logo & amendment to page 3 & 5	13/12/00
2	Add cabling info	14/5/01
3	Add Line Output section	6/11/02

Pin Number

The security code or 'pin number' for this unit is: **#123**

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DISCLAIMER

This manual contains information that is correct to the best of Audix Systems knowledge. It is intended to be a guide and should be used as such. It should not be considered as a sole source of technical instruction, replacing good technical judgement, since all possible situations cannot be anticipated. If there are any doubts as to exact installation, configuration and/or use, call Audix Systems at +44 (0)1799 540888

ACKNOWLEDGEMENTS

All trademarks are recognised

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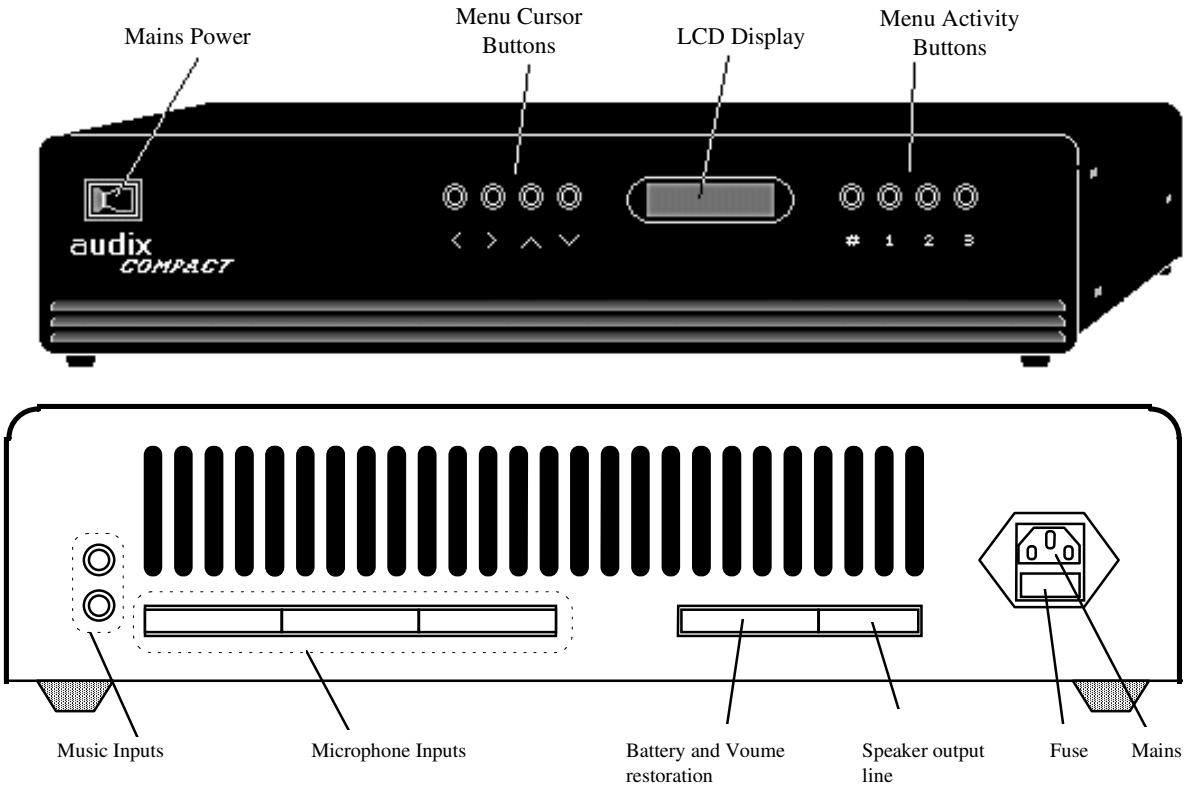
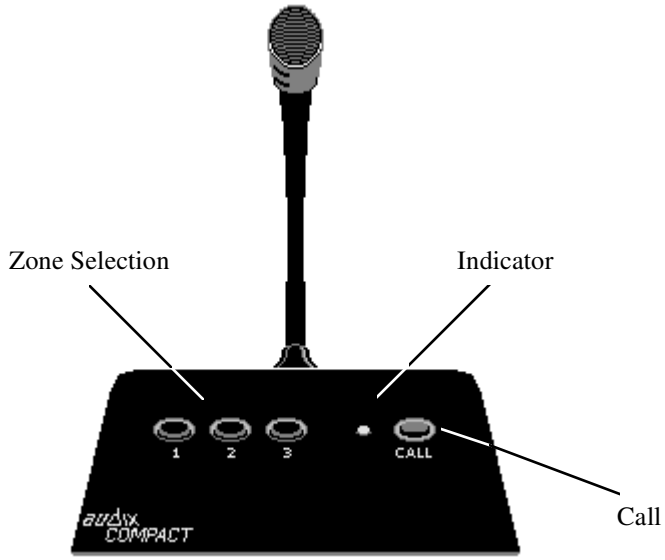
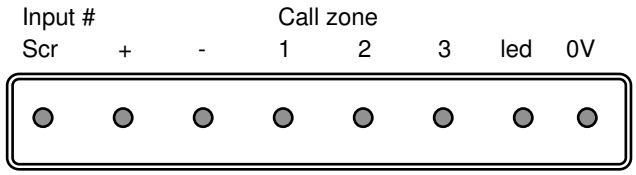
1 Amplifier Layout



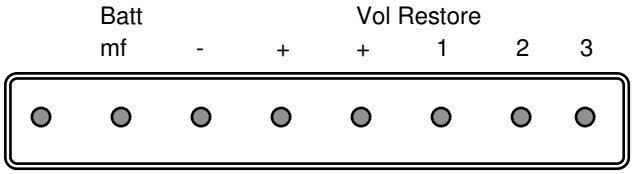
2 Microphone Layout



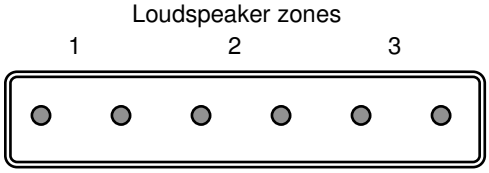
3 Rear Panel Connectors



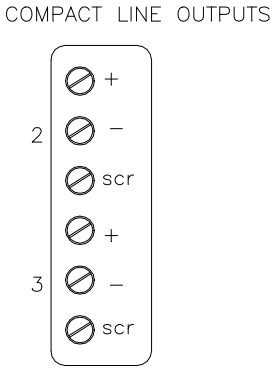
Microphone Input



Battery and Volume Restoration



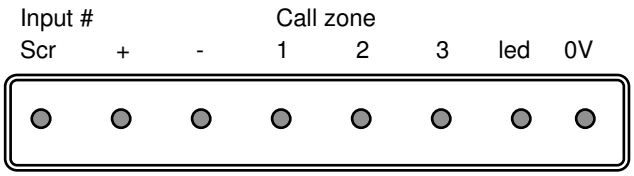
Loudspeaker Outputs



Line Outputs (120LO only)

4 Installation

4.1 Microphone



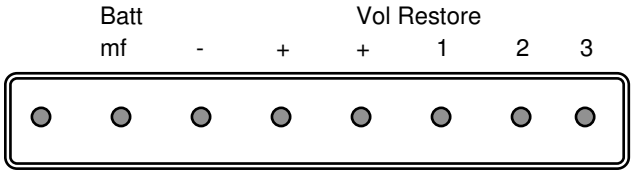
Standard cabling requirements:-

Microphone Type	Cable Requirement	Belden Equivalent
Compact 3ZM	1 off 0.5mm² screened, twisted pair. 3 off 0.5mm² screened pair (up to 100M).	8778

Wire each microphone connector as follows;

Scr	Mic line screen
+	Mic line white
-	Mic line Blue
Call Zone	
1	Purple
2	Green
3	Yellow
LED	Red
0V	Black

4.2 Battery/Volume Restore



4.3 Battery Backup

The COMPACT can be supplied by a battery (22 - 28V DC) which automatically cuts in when the mains fails.
Connect the terminals of the battery to the + and -.

4.4 Mains Fail Indicator

The COMPACT can provide a supply for a Mains Fail buzzer of indicator

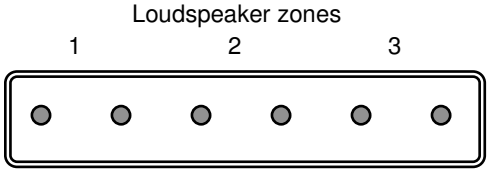
The “mf” pin is pulled down to 0V when a mains failure occurs (provided battery backup is being used). Connect a 24V indicator or buzzer between “mf” and “Vol Restore +” (24V).

4.5 Volume Restoration

Volume Restoration allows the use of volume controls within speakers or within a room. These incorporate relays which bypass the volume control on live broadcast and broadcast at the tapped volume. Each zone has a “Volume Restore” output.

The “Volume Restore” pin is pulled down to 0V when that particular zone is called. Connect the volume restoration relay between the relevant zone pin and “Vol Restore +” (24V).

4.6 Speakers



Connect the Loudspeaker lines to the Loudspeaker Output connector

IMPORTANT;

Ensure that the total loudspeaker load does not exceed the rated output power configuration.

The following core sizes are advised for the distance and power indicated to achieve a loss of less than 1dB at the last speaker.

Total Speaker Load	Core size mm^2	Max Distance to Last Speaker
60W	1.5 mm^2 2.5 mm^2 4.0 mm^2	1540m 2500m 4000m
120W	1.5 mm^2 2.5 mm^2 4.0 mm^2	800m 1300m 2030m

*Note; Cable sizes are approximate and depend upon the speaker loading. Please contact Audix for more detail regarding project specific cable size calculations.

5 Operation

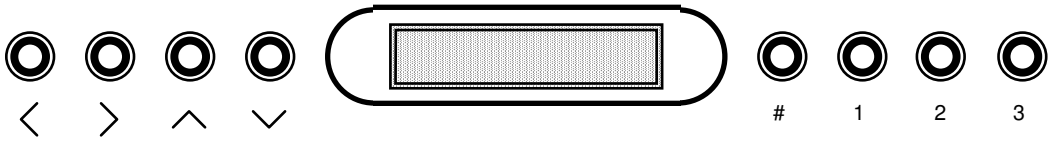
5.1 Factory Settings

When your new COMPACT is delivered from the factory it has the following configuration;

Three zones each with background music
Total Power (all zones combined) 60W
Dual-channel providing announcements to some zone(s) whilst maintaining music to other zones.
All inputs set to mic line level
100V speaker lines enabled for all functions (music and broadcast)
Music source routed to zones
Chime ("Bing-Bong") enabled
Priority settings (not configurable);

1	Mic/line 1
2	Mic/line 2
3	Mic/line 3
4	Music

5.2 Using The Menu Controls



The *COMPACT* is designed to be setup via the menu controls on the front of the unit.

5.3 Accessing the Menu

Press any button on the front panel.
Enter your PIN number (supplied with the unit)
Use the **>** and **<** controls to scroll through the menus in the following order;

- Music Volume
- Input 1 Volume
- Input 2 Volume
- Input 3 Volume
- Music Bass
- Music Treble
- Inputs Bass
- Inputs Treble
- Chime Volume
- All Volume

If a button is not pressed the menu switches to "PRESS 1 TO LOCK" with a bar display showing the signal volume. Pressing any button displays the current menu screen. Pressing "1" saves the current settings and returns the unit to its' default menu.

Use the ∨ and ∧ controls to adjust the settings.

At any stage the *COMPACT* can be returned to its' factory settings for any menu item by pressing the **#** button.

Music Volume
Use the ∨ and ∧ controls to adjust the volume of the music output to ALL zones with music enabled. The level bar displays the music output volume.

Input (1, 2, 3) Volume
Use the ∨ and ∧ controls to adjust the volume of each input (mic or line) in turn. The level bar displays the input volume.

Music Bass
Use the ∨ and ∧ controls to adjust the BASS of the music output to ALL zones with music enabled. The level bar displays the music output volume.

Music Treble
Use the ∨ and ∧ controls to adjust the TREBLE of the music output to ALL zones with music enabled. The level bar displays the music output volume.

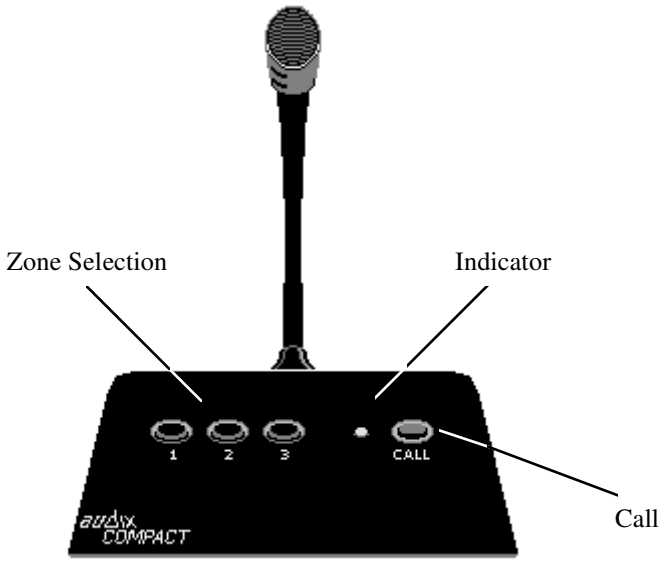
Inputs Bass
Use the ∨ and ∧ controls to adjust the BASS of ALL the mic (or line) inputs. The level bar displays the highest priority input volume.

Inputs Treble
Use the ∨ and ∧ controls to adjust the TREBLE of ALL the mic (or line) inputs. The level bar displays the highest priority input volume.

Chime Volume
Use the ∨ and ∧ controls to adjust the volume of the chime output to ALL zones. The level bar displays the output volume.

ALL Volume
Use the ∨ and ∧ controls to adjust all the volumes (music, input and chime) together by incrementing (or decrementing) one unit each time the ∨ and ∧ controls are pressed. The level bar displays the output volume.

6 Microphone Operation



The COMPACT microphone uses an LED indicator to show the current status of the system

Slow Blink	System available
Fast Blink	System busy/chiming/microphone over-ridden
Continuous	Speak

6.1 Operation

Select the zones by pressing the latching 1, 2, 3 buttons. Note that the zones are only activated when the CALL button is pressed.

Press CALL

The Indicator will blink fast to show that the chime is being broadcast

When the indicator is on continuously, speak clearly into the microphone

Releasing the CALL button returns the COMPACT to its' standby state.

Re-press the Zone selection buttons to de-select the zone

If, during a broadcast, a higher priority microphone is used, the lower priority unit is cut off and the indicator blinks fast.

The lower priority microphone will continue to broadcast to any zones NOT selected by the higher priority unit. However, the lower priority user will not know which zones are being over-ridden.

7 Configuration

7.1 Factory Settings

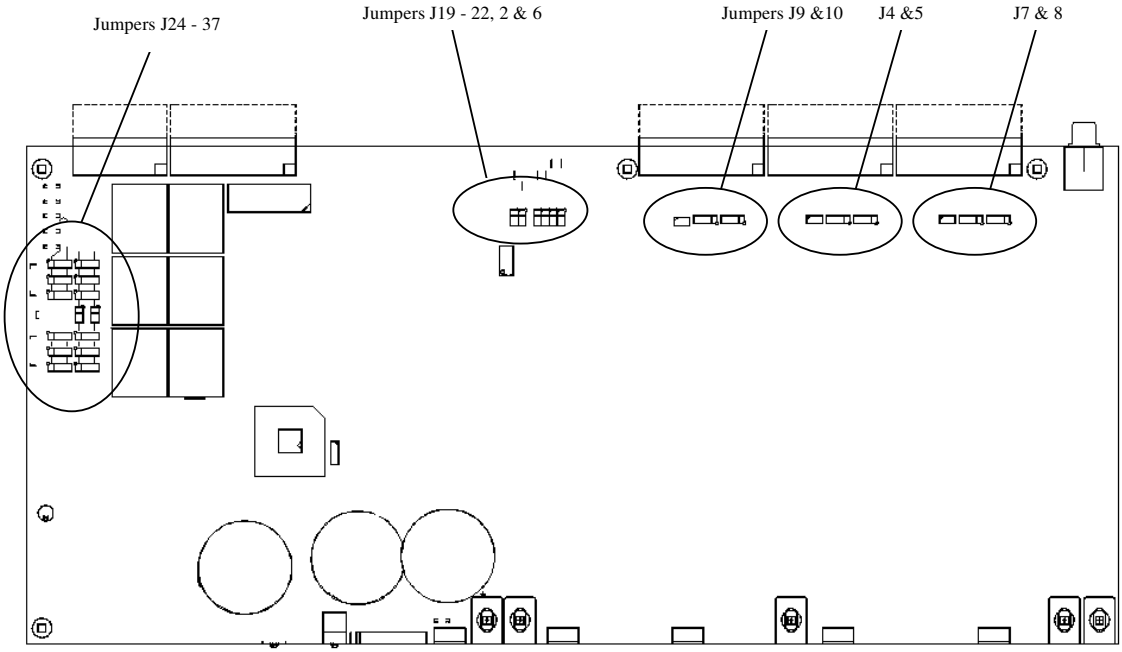
When your new COMPACT is delivered from the factory it has the following configuration;

Three zones each with background music
Total Power (all zones combined) 60W
Dual-channel providing announcements to some zone(s) whilst maintaining music to other zones.
All inputs set to mic line level
100V speaker lines enabled for all functions (music and broadcast)
Music source routed to zones
Chime (“Bing-Bong”) enabled
Priority settings (not configurable);

1	Mic/line 1
2	Mic/line 2
3	Mic/line 3
4	Music

7.2 Custom Configuration

To change the system configuration;
Isolate the *COMPACT* from the mains and any other power supply.
Remove the lid
Identify Jumper Links



Jumper Link locations

7.3 Microphone/Inputs

Decide on input configuration;
There are three inputs, each of which can be configured as microphone (factory setting) or line (for example; tape deck or pre-amplified microphones).

	Mic	Line
Input 1	J9 [1-2]*	J9 [2-3]
	J10 [1-2]*	J10 [2-3]
Input 2	J4 [1-2]*	J4 [2-3]
	J5 [1-2]*	J5 [2-3]
Input 3	J7 [1-2] *	J7 [2-3]
	J8 [1-2] *	J8 [2-3]

* Factory Fit

Chime Disable

The *COMPACT* is supplied with the chime enabled.

Fit jumper to disable chime	J6

7.4 Amplification

Decide on output configuration

Dual Channel (2 x 60W)

The COMPACT is a Dual-channel system allowing announcements to some zone(s) whilst maintaining music to other zones music AND with 60W output per channel (factory setting).
IMPORTANT; All the speaker zones when added together must not exceed 60W.

Single Channel (120W)

The COMPACT can be configured to provide a single channel of 120W which cuts the music to all zones when a live broadcast is made.
IMPORTANT; All the speaker zones when added together must not exceed 120W.

Power amplifier configuration		2x60W	1x120W 100V o/p	1x120W 50V o/ps
music relay control (120W amp)	J2	-	1	1
2x60W	J19	1*	-	-
120W	J20	-	1	1
120W	J21	-	1	1
2x60W	J22	1*	-	-
50V o/ps in parallel (120W amp)	J36	-	-	1

100V o/ps in parallel (120W amp)	J37	-	1	-

* Factory Fit

7.5 Music Zones

Decide on Music zones

The COMPACT can be configured to provide music to any combination of zones (factory setting is all zones to receive music).
To disable music to any zone remove the “music to zone” jumper as the table below.

Decide on the output impedance.

Fit the links from the table below according to the impedance of the output load.
IMPORTANT; The calls and music to any particular zone MUST have the same output impedance jumper fitted.

	4 ohm	8 ohm	50V	100V
Calls to zone 1	J24 (1-2)	J24 (2-3)	J25 (1-2)	J25 (2-3)*
Calls to zone 2	J26 (1-2)	J26 (2-3)	J27 (1-2)	J27 (2-3)*
Calls to zone 3	J28 (1-2)	J28 (2-3)	J29 (1-2)	J29 (2-3)*

Music to zone 1	J30 (1-2)	J30 (2-3)	J31 (1-2)	J31 (2-3)*
Music to zone 2	J32 (1-2)	J32 (2-3)	J33 (1-2)	J33 (2-3)*
Music to zone 3	J32 (1-2)	J34 (2-3)	J35 (1-2)	J35 (2-3)*

* Factory Fit

Example;

50V system with music on zone 3 only

Fit J25 (1-2), J27 (1-2), J29 (1-2), J35 (1-2)
Remove J31 (2-3), J33 (2-3)

7.6 Line output configuration

If the Music input is NOT USED and is turned down, then the Compact can be configured for 120W and Zone 1 load increased to 120W. (fit jumpers J20/J21 as usual for 120W)

If the Music input is required the Compact should be jumpered internally for Dual channel 2x60W operation.

No connections should be made to the normal Zones 2 and 3 outputs on the Compact.

Amplifiers to drive zones 2 and 3 should be driven from the line-level (0dB) outputs on the compact add-on line output card .

It is possible to disable background music only on the zone 1 output.
Because external amplifiers are used to drive Zones 2 and 3, the music jumpers have no effect on background music to zones 2 and 3, i.e. Music is always enabled to these externally powered zones.

8 Capabilities

- Versatile 2 x 60W configuration with additional option to parallel both amplifiers for a single 120W output.
- Liquid Crystal bar graph text in multiple languages.
- Three microphone/line inputs plus a dedicated music input.
- Three output zones with zone selection.
- Separate volume controls on all microphone/line inputs.
- Independent volume and tone controls on music.
- Optional pre-announce chime.
- Priority system for microphone/line inputs.
- Proven MOSFET design with in-built open and short circuit protection..
- Overload protection, with self re-setting thermal shutdown characteristic.
- High integrity connectors throughout.
- Optional pre-announce chime.
- Attractive microphone unit in matching style.
- Slim line case for use in a host of retail, pub and club, hotel, restaurant, service station and medical centre applications.
- Standalone or 19" rack mounted versions available.
- LED on microphone console for busy or chime indication.

9 Specification

Rated power	60W + 60W rms.	
Output voltage	100V rms.	
Alternative outputs	4 Ohms, 8 Ohms, and 50V	
Frequency response. (-3dB)	100Hz to 20kHz.	
Tone controls (Music and Mics have separate controls).	Bass	$\pm$12dB at 100Hz
	Treble	$\pm$12dB at 10kHz.
Distortion (THD).	Better than 1% at rated output typically less than 0.1% at 1kHz.	
Signal/Noise.	Better than -80dB 22Hz-22kHz	
Sensitivity. (10dB gain in hand on volume controls)		
	Mic input	0.7mV (-60dBu)
	Line input	70mV (-20dBu)
	Music input	70mV (-20dBu)
Case Dimensions	430mm x 335mm x 80mm	
Weight	11.5 Kg	
Power requirements	240V AC mains 1 Amp max. OR 24V DC 10 Amps max Quiescent current requirement: 300mA at 24 V dc (typical 240mA) (Battery units with built in chargers are available from the Audix	

Product range).

10 Warranty And Liability

Storage
Where equipment is stored on Site prior to installation, it is the Purchasers' responsibility to ensure the safety and good condition of the equipment. Any damage to equipment on Site shall not prejudice payment by the due date.

Damage or Loss in Transit
When the price quoted includes delivery or where this is specifically charged, the Company will repair or replace free of charge goods damaged in transit provided that the Company and the carriers receive written notification within 3 days of delivery. The Company must be informed in writing within 14 days of your receipt of our Advice of Despatch if any goods are not delivered.

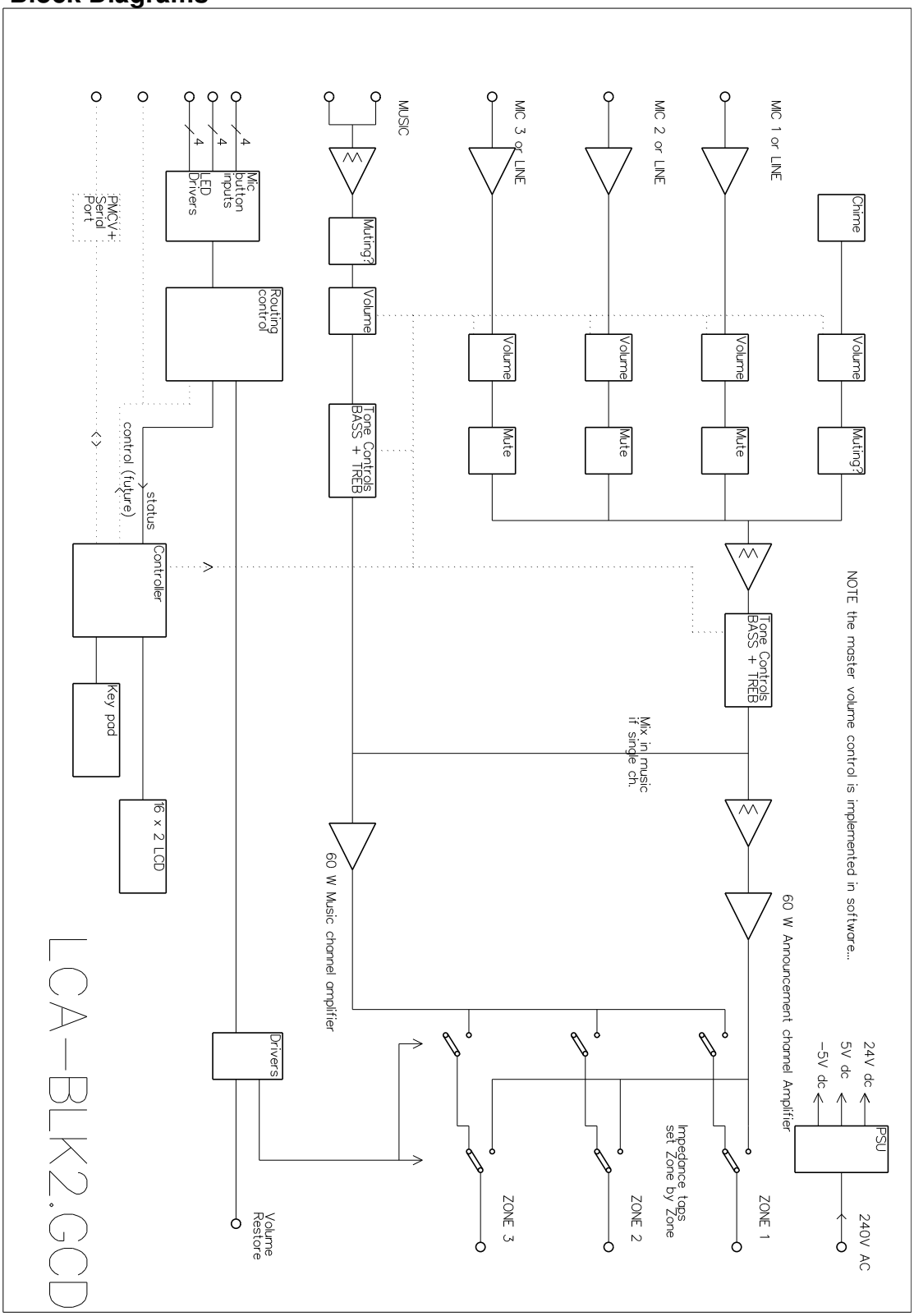
Liability for Defects
Liability in respect of any defect in or failure of the goods or equipment supplied or for any loss damage or injury attributed thereto is limited to replacement or repair of defective design materials or workmanship within a period of 12 months of despatch by the Company provided that such defected parts are promptly returned carriage paid by the Customer to the Company unless otherwise arranged. The right to make a charge for labour, handling expenses and return carriage on the repaired or replacement parts is reserved. The Company shall be under no liability in contract, tort or otherwise for any personal injury, loss or damage or whatsoever kind of howsoever caused or for anything done or omitted in connection with the goods or equipment or any work in connection therewith.

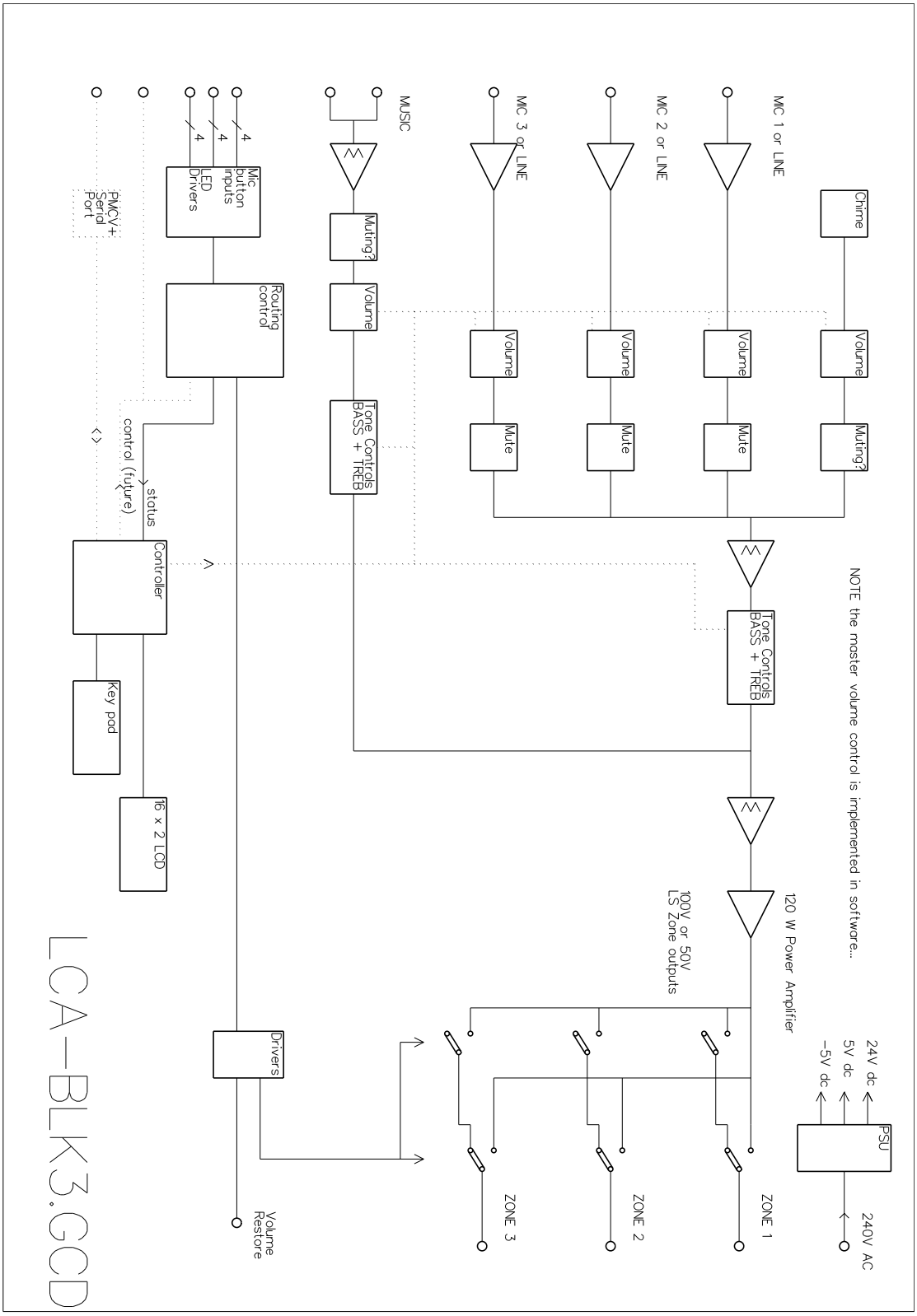
Environment
The Company cannot be held responsible for any defects arising from humidity and excessive temperatures - the products are designed for use at normal room temperatures, typically in the range 15°c to 21°c.

Title of Goods
All items remain property of the Company until payment for the goods is made in full. The Company reserves the right to repossess and paid.

Laws
These conditions shall be governed and construed in accordance with the English Law and shall be subject to the exclusive justification of English courts

11 Block Diagrams




LCA-BLK3.GCD
NOTE the master volume control is implemented in software...
MIC 1 or LINE
MIC 2 or LINE
MIC 3 or LINE
MUSIC
Chime
Volume
Muting?
Mute
Tone Controls BASS + TREB
120 W Power Amplifier
100V or 50V LS Zone outputs
ZONE 1
ZONE 2
ZONE 3
PSU
24V dc
5V dc
-5V dc
240V AC
Routing control
Mic button inputs
LED Drivers
PMCV+ Serial Port
control (future)
status
Controller
Key pad
16 x 2 LCD
Drivers
Volume Restore